Institut für Höhere Studien (IHS), Wien
Institute for Advanced Studies, Vienna

No. 76

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A Bird's Eye View

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Reihe Ökonomie / Economics Series No. 76

December 1999

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Abstract

The paper attempts to establish a few stylised facts about Euroland's labour market given the increasing importance of smoothly functioning markets in the EMU. We assemble econometric evidence regarding labour demand behaviour, wage-setting mechanisms and the cyclicality of unemployment in Euroland. We find that in the 1990s unemployment cyclicality has been higher in Euroland than in the US, while the opposite was true in the previous two decades. The main reason for this is to be found in Euroland's employment now responding much stronger to cyclical fluctuations in output than in the past, and even somewhat stronger than in the US. Thus, it appears rather implausible that overall too strict employment protection regulations can still offer a convincing explanation for a significant part of Euroland's problem of persistently high unemployment. There can be little doubt, however, that wage-bargaining in Euroland continues to suffer from a serious insider-outsider problem.

Keywords

Unemployment, wage-setting mechanisms, European Monetary Union

JEL Classifications

E24, J30, J64

Comments
We are grateful to Jan-Host Schmidt, Andre Sapir, Paolo Sestito, and other colleagues in DG 2 for many helpful discussions on the topics considered in this paper. The views expressed here are only attributable to the authors and do not necessarily reflect the view and opinions of the European Commission.

Contents

I. Introduction

To the extent that relatively low employment rates and persistently high unemployment rates indicate a malfunctioning of labour markets, EMU has entered its third stage in a situation in which labour market mechanisms still need to be improved considerably in order to expand employment opportunities and to reduce structural unemployment. This paper analyses a few key labour market mechanisms in Euroland with some focus on the impact EMU might have on labour market mechanisms and, conversely, the risks emanating from labour markets that are still generally hampered by numerous structural problems.

The plan of the paper is as follows: in section II we set the stage by summarising briefly the main arguments for the increasing importance of labour market flexibility in EMU. Section III attempts to establish a few stylised facts about labour market(s) mechanisms in Euroland by providing empirical evidence regarding aggregate labour demand, wage bargaining behaviour and the cyclicality of unemployment in the euro area. Section IV recapitulates our main findings and draws a few policy conclusions.

II. EMU and the Labour Market(s)

EMU delivers a number of benefits. The single currency puts an end to exchange rate uncertainty on trading decisions among its member countries. This should also reduce interest rate risk premia and, thus, borrowing costs in many countries. Furthermore, conversion costs arising from the use of separate national currencies are eliminated. Together with the sharpened price transparency, the efficiency of the Single Market will be greatly enhanced by increased competition and greater specialisation and trade within the euro-zone and, last not least, by more integrated European financial markets (European Commission 1996).

Against these benefits, which are likely to accumulate over time, the main potential cost of EMU is the loss of independence in monetary policy and, by implication, the use of the nominal exchange rate as a means to alter relative prices between countries. Clearly, the significance of this loss depends on the degree to which this instrument would be used (considering that a number of the Member States belonged to the de facto DM-zone), on the likelihood of country-specific shocks that call for an adjustment of real exchange rates and on the efficiency of alternative adjustment mechanisms to country-specific economic disturbances. Regarding the latter, fiscal stabilisation policies are, of course, an important instrument in accommodating temporary adverse demand developments, but, in general, swift absorption of macroeconomic shocks depends on well-functioning markets for goods and services and factors of production.

EMU, however, can be expected to exert a profound impact on the market participants. In particular, it will affect the price setting and wage bargaining behaviour of economic agents in a macro-economic environment characterised by a single, stability-oriented monetary policy and sound national fiscal policies in accordance with the provisions of the Treaty and the Stability and Growth Pact designed to avoid any conflict with monetary policy (Buti and Sapir 1998).

The introduction of a single currency is bound to increase the degree of competition in product and service markets by enhancing price transparency across EMU Member States. Thus, EMU provides an additional impetus to already ongoing efforts in the context of the Single Market Programme to improve the functioning of product and service markets, the necessity of which is highlighted by the empirical observation that average mark-ups in the Community are significantly higher than in the US (European Commission 1999). More competitive product and service markets will help to achieve better labour market outcomes, in particular when accompanied by appropriate labour market reforms. Fiercer competition is likely to be associated with a higher level of job turnover; thus, the full gains of better functioning product and service markets will only materialise if sufficiently flexible labour markets allow for a relatively smooth and swift reallocation of labour.

EMU will also provide improved framework conditions for employment-compatible wage bargaining behaviour as the link between wage and employment trends will become more evident and stringent. With the bailout option of nominal exchange rate devaluation no longer existing, any substantial error in wage setting would quickly translate into deteriorating labour market conditions. In EMU it is therefore even more important than in the past for wage developments to be in line with the macro-economic framework set at the Community level, in particular by the Broad Economic Policy Guidelines (European Commission 1998) and the European Central Bank in its pursuit of price stability.

The responsibility for wage setting procedures and outcomes compatible with the achievement and maintenance of high employment continues to fall primarily in the domain of the social partners. As indicated above, inappropriate wage developments – or, more generally speaking, inadequate labour market structures – in specific countries or regions, particularly when they are big enough to require an offsetting monetary policy response, may have harmful consequences for other members of EMU as well, thus re-enforcing the case for strengthened economic policy co-ordination.

Given the overall stability orientation in EMU, the likelihood of country-specific economic disturbances will be reduced; nevertheless, the efficient operation of remaining adjustment channels like fiscal policy and a flexible response of markets, including the labour market, has to be ensured, if adjustment to country-specific shocks through recession and higher unemployment is to be avoided.

In case of temporary adverse demand developments, the burden on wage adjustment can to some extent be mitigated by fiscal policy temporarily allowing the budget deficit to run high due to the effect of automatic fiscal stabilisers. In principle, the effectiveness of fiscal stabilisation policies may even be higher now, since negative spill-over effects between monetary and fiscal policies appear to be attenuated in EMU. Despite significant progress in recent years, however, in many countries public finances have not yet regained the full room for manoeuvre in accordance with the provisions of the Stability and Growth Pact to help cushion the negative demand impact for an interim period.

Fiscal stabilisation policies are apparently less adequate in case of a more permanent negative supply shock calling for an adjustment in real wages. However, resistance to real wage adjustment might be reduced, when fiscal policies assist to spread the necessary decline in real income more evenly across the population, thus not putting the adjustment burden entirely on wage earners. Fiscal policy may also play an important role if addressed at improving productivity through incentives for restructuring and increased public investment in infrastructure and human capital formation.

In general, however, smooth shock-absorption will require a flexible wage formation process. Without this flexibility, the necessary adjustment will be through employment levels. The available country-specific empirical evidence suggests that while long-run real wage flexibility in most EU countries more or less matches US levels, the speed of adjustment has been significantly lower in continental Europe (OECD 1994). Thus, short-run costs in terms of output, job losses and unemployment are increased. Moreover, these negative sequels run the risk of persisting through time, since unemployment may breed unemployment, mainly by diminishing the effectiveness of the (long-term) unemployed as job seekers in the market. Thus, the case for active labour market policies to upgrade skills, to facilitate reintegration of the unemployed and to increase labour supply is considerably strengthened.

Quantity adjustment to shocks may also occur in form of labour mobility. However, (geographical) labour mobility and intra-area migration flows are low in Europe compared to the US. The number of EU nationals resident in another Member State is only 5.5 million, equivalent to 1 ¼per cent of the EU population. Intra-country mobility is also low in most euro-area countries; immigration and emigration rates (at the NUTS 1 level) average about 0.5 per cent of the regional population in Italy and Spain; in the Netherlands and Germany, at the other end of the spectrum, migration rates are almost three times as high, but nonetheless, still considerably lower than in the US or Australia (EUROSTAT 1995, OECD 1999a). EMU can be expected to foster labour mobility facilitated by economic integration and the Single Market Programme, but it seems unlikely that geographical labour mobility will increase greatly within the euro-zone.

Even without large-scale migration of labour, however, labour mobility continues to play an important role in the continuous job turnover process associated with perpetual structural change. Given the increasing need to re-allocate resources across sectors and regions, emphasis should be placed on efficient benefit systems and mobility enhancing active labour market programmes rather than costly job protection regulations. Indeed, in a number of EU countries regulations on employment contracts have been significantly eased, in particular on so-called "atypical" employment contracts such as part-time jobs and temporary work (OECD 1999b). Given the current sustained strict employment protection regulation on regular contracts, there have been additional incentives to switch from permanent contracts to more flexible work arrangements. While this may have helped to achieve the required workforce flexibility in otherwise still fairly rigid labour markets, it may have also led to a more segmented labour market in which those with permanent contracts benefit both from employment protection legislation and from increased bargaining power by virtue of a growing number of workers in "atypical" forms of employment.

III. A Few Stylised Facts about Euroland's Labour Market

This section attempts to establish some stylised facts with respect to labour demand behaviour, wage-setting mechanisms and the cyclicality of unemployment in Euroland. In part 1 a simple equation for aggregate labour demand is specified and estimated on a consistent OECD macroeconomic data set for the euro area. Part 2 makes use of a standard wage bargaining framework to derive a fairly parsimonious specification to capture the movement of aggregate gross product wages per worker and to reconsider the evolution of the share of wages in nominal output. Finally, part 3 looks at the responsiveness of employment and the labour force to cyclical conditions in Euroland and provides an empirical assessment of Okun's law for the euro area. A special emphasis is put on possibly detecting shifts in structural parameters in the recent past, which would be indicative of a change in behavioural relations.

III.1 A Simple Labour Demand Equation for Euroland

The purpose of this section is to characterise aggregate labour demand behaviour in Euroland by estimating three key parameters of a fairly conventional structural labour demand equation. The parameters of interest are the speed of employment adjustment, the real wage elasticity of labour demand, and an estimate for trend growth in labour productivity in the euro area. The analytical tool used is an inverted production function approach, with optimal factor demand equations being derived from cost minimisation subject to a production function constraint.

For a standard CES-type production function optimal labour demand N* under cost minimisation is given by

(1) $N^* = A \cdot GDP \cdot (W/P)^{-\mu} \cdot e^{-g\,T}$

where N* denotes optimal employment, A is a scaling parameter, GDP is output in volume terms, W/P is gross wages per worker deflated by output prices, μ is the real wage elasticity of labour demand, and g represents exogenous technical progress. Assuming that employment does not adjust instantaneously to its optimal level, we may think of a partial adjustment process in the form

(2) $(N / N_{-1}) = (N^* / N_{-1})^S$ with $0 < s < 1$

where N is actual employment and the partial adjustment parameter s denotes the speed of adjustment. Substituting (1) into (2) and taking logarithms yields

(3) $\log (N / N_{-1}) = s \log A + s \log (GDP/N)_{t-1} - s.\, \mu \log (W/P) - s.\, g\, T$

which can be estimated straightforward by OLS. In order to account for a structural break in trend productivity growth, we allow for different time trends running up to 1974 and from 1975 onwards. Finally, for a rough check on parameter stability over time, we also estimate the labour demand equation over the restricted time period of the past ten years, i.e. 1989–1998.

The data set used throughout this chapter is the one as compiled by the OECD Secretariat for the euro area as a whole. Eurostat and the ECB already produce certain statistics for the euro area, but these are available only for a relatively short period and, so far, have only limited coverage; whereas the OECD provides a quite complete and consistent macro-economic data set of the euro area. Value and volume series for Euroland are calculated as weighted averages of the eleven countries series using previous period value levels converted in a common currency as weights. This calculation method is applied to growth rates. Corresponding level series are constructed on the basis of these calculated average growth rates and corresponding 1999 values, calculated as the sum of in euros converted values of the 11 member countries. Aggregate potential output is based on weighting potential output growth rates of the 11 euro area countries with moving weights based on exchange rates and local currency GDP value levels in the previous period. The output gap is then simply defined as the percentage deviation of actual real GDP from potential real GDP. Price series are obtained by dividing the value series by the volume series. The euro area unemployment rate is calculated on the basis of the unemployment data of the 11 countries according to the OECD commonly used definitions. Therefore, it differs from the rate published by Eurostat based on standardised unemployment data.

The estimation results for an Euroland aggregate labour demand equation are presented in Tables 1–3. Table 1 shows the results of OLS estimation of equation (3) over the period 1970 to 1998. The speed of employment adjustment is estimated at 0.54, thus on average slightly more than one half of the employment adjustment towards its optimal value has taken place within a year. The point estimate for the real wage elasticity of labour demand suggests that for a one per cent increase in real product wages labour demand will drop, ceteris paribus, by 0.41 per cent. The estimate for trend technical progress conforms by and large with expected patterns, exhibiting a significant slowdown after 1974. It may be interesting to note, however, that the estimate for exogenous technical progress suggests an average growth rate of only about 1.3 per cent in the period after 1974, while observed labour productivity increased on average by 1.8 per cent over this time horizon, implying that part of labour productivity growth has been induced by relative factor price movements.

Table 1: Labour Demand Equation Euroland (OLS)

List of Variables in the Equation

ET	Employment total, in mill.
Var1	LN(GDPV<1>/ET<1>), Adjustment GDP volume
Var2	LN(WSSE/PGDP), Real Product Wages
T-74	Timetrend before 1974
T75-	Timetrend after 1974
D91	DUMMY 1991=1, German reunification
CONST	CONSTANT TERM

Time Range for Estimation: 1970 – 1998

Dep. Variable: LN(ET/ET<1>)				R2 0.855	R2C 0.823
Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	Var1	0.53836	0.11669	4.61	46.0
B2	Var2	-0.21852	0.06915	3.16	15.7
B3	T-74	-0.01065	0.00442	2.41	5.2
B4	T75-	-0.00696	0.00165	4.22	28.1
B5	D91	0.05319	0.00846	6.29	5.0
B6	CONST	-2.18403	0.48455	4.51	0.0
SE	0.00679	MAPE	55.56	DW 1.799	RHO(1) 0.08

Estimates of structural parameters:

Speed of employment adjustment	0.54
Real wage elasticity of labour demand	-0.41
Trend growth of technical progress	
Until 1974	2.0
After 1974	1.3

Table 2 shows the result of replacing real product wages by its one-period lagged level, but this exercise yields more or less the same parameter estimates and all the qualitative conclusions remain unaffected. Finally, the equation has been re-estimated over the period from 1989 to 1998, with the results displayed in Table 3. When the labour demand equation is estimated over the past ten years only, the speed of employment adjustment appears to have been somewhat faster in the past decade than in the 1970s and 1980s, while the other structural parameters in this simple labour demand equation have apparently remained more or less unchanged.

Table 2: Labour Demand Equation Euroland – Alternative Specification

List of Variables in the Equation

ET	Employment total, in mill.
Var1	LN(GDPV<1>/ET<1>), Adjustment GDP volume
Var2	LN(WSSE/PGDP), Real Product Wages <LAG 1>
T-74	Timetrend before 1974
T75-	Timetrend after 1974
D91	DUMMY 1991=1, German reunification
CONST	CONSTANT TERM

Time Range for Estimation: 1970 – 1998

Dep. Variable: LN(ET/ET<1>)				R2 0.860	R2C 0.830
Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	Var1	0.60792	0.12675	4.80	45.9
B2	Var2	-0.20071	0.05968	3.36	14.3
B3	T-74	-0.01326	0.00417	3.18	5.8
B4	T75-	-0.00818	0.00176	4.64	29.2
B5	D91	0.05863	0.00757	7.74	4.9
B6	CONST	-2.39076	0.51264	4.66	0.0
SE	0.00666	MAPE 53.47		DW 1.680	RHO(1) 0.14

Estimates of structural parameters:

Speed of employment adjustment	0.61
Real wage elasticity of labour demand	-0.33
Trend growth of technical progress	
Until 1974	2.2
After 1974	1.3

Table 3: Labour Demand Equation Euroland: 1989–1998

Time Range for Estimation: 1989 – 1998

Dep. Variable: LN(ET/ET<1>)				R2 0.969	R2C 0.943
Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	Var1	0.79849	0.15100	5.29	40.2
B2	Var2	-0.28487	0.50606	0.56	9.7
B3	TREND	-0.00973	0.00477	2.04	33.3
B4	D91	0.04724	0.01751	2.70	16.9
B5	CONST	-3.27327	0.97456	3.36	0.0
SE	0.00632	MAPE 12.45		DW 2.686	RHO(1) -0.35

Estimates of structural parameters:

Speed of employment adjustment	0.80
Real wage elasticity of labour demand	-0.36
Trend growth of technical progress	1.2

Summing up, according to the above estimation results labour demand behaviour in Euroland exhibits the following stylised features:

- The real wage elasticity of labour demand is estimated at between –0.3 to –0.4; thus, a one per cent decrease in real product wages increases, ceteris paribus, employment demand by 0.3–0.4 per cent.

- The speed of employment adjustment has apparently increased in the past decade to around 80 % of adjustment being achieved in one year, up by some 25 percentage points from its average value over the past three decades.

- Autonomous technical progress is estimated to have averaged 1.2–1.3 per cent per year in the period since 1975, a value which falls significantly short of the trend growth rate of actual labour productivity amounting to 1.8 per cent in this time span.

III.2 A Simple Wage Equation for Euroland

In this section, an aggregate wage equation is set up which can be derived from a standard wage bargaining model or, alternatively, from efficiency wage considerations. In this context, the key parameters of interest are the degree of real wage rigidity and the speed of adjustment in wages to a shock.

We start from a fairly general specification for wage behaviour which relates the growth of gross product wages per employee to product price inflation measured via the GDP deflator, labour productivity growth and unemployment. An almost unrestricted estimate of such a relation is given in Table 4.

Table 4: Aggregate Wage Equation Euroland (OLS)

```
                List of Variables in the Equation

      WSSE            Gross wages per employee, in 1000 euros
      PGDP            GDP deflator, 1999=100
      Var1            LN(WSSE<1>/PGDP<1>), Real product wages lag 1
      Var2            LN(GDPV<1>/ET<1>), Labour productivity lag 1
      Var3            LN(GDPV/ET)-LN(GDPV<1>/ET<1>)
      UR              unemployment rate euroland oecd
      D91             DUMMY 1991=1, German reunification
      CONST           CONSTANT TERM

       Time Range for Estimation:  1970    – 1998

 ============================================================================
 Dep. Variable:  LN(WSSE/WSSE<1>)               I R2  0.987 I R2C  0.983
----------------------------------------------------------------------------
 Nr.I Independent Variables         I Est. Coeff.I St. Dev.  I   t   I BC %
----------------------------------------------------------------------------
    I                               I           I           I       I
 B1 I LN(PGDP/PGDP<1>)              I    1.17580 I   0.14619 I  8.04 I 23.9
    I                               I           I           I       I
 B2 I Var1                          I   -0.22591 I   0.05686 I  3.97 I 24.8
    I                               I           I           I       I
 B3 I Var2                          I    0.18713 I   0.05451 I  3.43 I 21.7
    I                               I           I           I       I
 B4 I Var3                          I    0.47184 I   0.13941 I  3.38 I  4.8
    I                               I           I           I       I
 B5 I UR                            I    0.00390 I   0.00205 I  1.90 I  9.3
    I                               I           I           I       I
 B6 I UR<1>                         I   -0.00544 I   0.00231 I  2.35 I 13.2
    I                               I           I           I       I
 B7 I D91                           I   -0.01730 I   0.00914 I  1.89 I  2.2
    I                               I           I           I       I
 B8 I CONST                         I   -1.02807 I   0.29627 I  3.47 I  0.0
    I                               I           I           I       I
----------------------------------------------------------------------------
 SE     0.00565  I  MAPE      7.06  I            I DW  1.929 I RHO(1) -0.03
============================================================================

         General F-Test        H0: B1=1, B2+B3=0
         H1: Restrictions under H0 are not valid

                OLS-coefficient      Restricted  OLS
                    Estimates            Estimates

            B1         1.17580              1.00000
            B2        -0.22591             -0.16213
            B3         0.18713              0.16213
            B4         0.47184              0.46299
            B5         0.00390              0.00321
            B6        -0.00544             -0.00749
            B7        -0.01730             -0.02095
            B8        -1.02807             -0.80598

           Value of Test-Statistic:      1.486
           Under H0: F( 2, 21)

            Prob value: 24.92%
```

The results suggest that product price inflation enters the equation with a unitary coefficient; thus, the equation can be reduced to a real product wage relation. Furthermore, the coefficients on lagged real wages and lagged labour productivity are of opposite sign, but of the same order of magnitude; thus, we arrive at a nice error correction model whereby in the long run the share of wages is related to the unemployment rate. Note, finally, that the impact effect of unemployment could not be correctly established by pointing to a high degree of short-run real wage rigidity.

Table 5 gives the result of re-estimating the equation in the form of an error-correction model for real gross product wages per worker. Additionally, the insignificant term for contemporaneous unemployment has been removed from the equation. The estimation results again confirm what is by now a well-established stylised fact of wage behaviour in most of continental Europe, namely a very slow adjustment of wages to shocks as indicated by the quite low coefficient on the error correction term. Taken at face value the estimate would suggest that it takes 4.4 years in Euroland to complete half of the adjustment. In the (very) long run, though, real product wages do appear to be highly sensitive to unemployment with the long-run effect estimated at around –3.

Table 5: Aggregate Real Product Wage Equation (OLS)

List of Variables in the Equation

Var1	LN(WSSE/WSSE<1>)-LN(PGDP/PGDP<1>)
Var2	LN(GDPV/ET)-LN(GDPV<1>/ET<1>)
ECWE	Error correction term, wage share lag 1
D91	DUMMY 1991=1, German reunification
UR	unemployment rate euroland oecd
CONST	CONSTANT TERM

Time Range for Estimation: 1970 – 1998

Dep. Variable: Var1				R2 0.922	R2C 0.909
Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	Var2	0.40524	0.11225	3.61	18.8
B2	ECWE	-0.14507	0.02946	4.92	19.3
B3	D91	-0.02395	0.00876	2.73	13.8
B4	UR<1>	-0.00438	0.00037	11.75	48.1
B5	CONST	-0.71368	0.15226	4.69	0.0
SE	0.00594	MAPE 50.53		DW 1.610	RHO(1) 0.10

Despite some efforts to detect a change in structural parameters of the wage equation over time, mainly by introducing both shift and trend dummy variables to capture possible changes in either the adjustment speed parameter or the coefficient measuring real wage rigidity, there seems to be little evidence of significant modifications in wage determination behaviour in Euroland. Table 6 shows one of the more interesting results from these exercises, where a linear change in the real wage rigidity parameter has been allowed for over the period of the past three years. It appears that long-run real wage rigidity may have declined somewhat further in the recent past, but the significance of this result is certainly not very pronounced.

Table 6: Real Product Wage Equation Euroland – Alternative Specification

List of Variables in the Equation

Var1	LN(WSSE/WSSE<1>)-LN(PGDP/PGDP<1>)
Var2	LN(GDPV/ET)-LN(GDPV<1>/ET<1>)
ECWE	Error correction term, wage share lag 1
D91	DUMMY 1991=1, German reunification
Var3	T96*UR<1>
UR	unemployment rate euroland oecd
CONST	CONSTANT TERM

Time Range for Estimation: 1970 – 1998

Dep. Variable: Var1				R2 0.932	R2C 0.917
Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	Var2	0.38310	0.10799	3.55	16.2
B2	ECWE	-0.17145	0.03172	5.41	20.7
B3	D91	-0.02735	0.00859	3.19	14.3
B4	Var3	-0.00029	0.00009	1.81	6.9
B5	UR<1>	-0.00419	0.00037	11.30	41.9
B6	CONST	-0.85167	0.16436	5.18	0.0
SE	0.00568	MAPE 37.54		DW 1.676	RHO(1) 0.09

Finally, we use the error correction model to derive the target share of wages in nominal output for given rates of unemployment as implied by a wage-determination process as described in Table 5. Note that the long-run relation between the share of wages and unemployment reads as follows:

(4) $w - p - pr = -4.919556 - 0.03192\ ur$

where w denotes gross wages per worker, p are output prices, pr is labour productivity (all variables in logs) and ur is the rate of unemployment. Thus, for any given rate of unemployment, the target share of wages can be calculated and compared to the actual value of the wage share. The results of this exercise are given in Table 7.

Table 7: Actual and Target Wage Shares in Nominal Output

YEAR	ACTUAL WAGE SHARE	ACTUAL UNEMPLOYMENT	TARGET WAGE SHARE
1970	51.839	2.200	68.072
1971	52.609	2.300	67.855
1972	52.704	2.600	67.208
1973	53.330	2.600	67.208
1974	54.636	2.800	66.780
1975	56.621	4.000	64.271
1976	56.489	4.400	63.455
1977	56.564	4.800	62.650
1978	56.222	5.100	62.053
1979	56.230	5.300	61.658
1980	56.517	5.700	60.876
1981	56.631	7.000	58.402
1982	56.342	8.300	56.028
1983	55.958	9.400	54.095
1984	55.073	10.200	52.731
1985	54.568	10.400	52.395
1986	53.787	10.500	52.228
1987	53.500	10.500	52.228
1988	52.483	10.100	52.899
1989	51.595	9.300	54.268
1990	51.316	8.600	55.494
1991	51.733	8.700	55.317
1992	52.021	9.600	53.750
1993	52.475	11.300	50.911
1994	51.219	12.200	49.470
1995	50.934	11.900	49.946
1996	50.344	12.300	49.312
1997	49.621	12.400	49.155
1998	48.823	11.700	50.266

The basic and, unfortunately, quite unpleasant message from the above table is that the target share of wages as implied by our model of the wage-bargaining process comes very close to observed values in the past two years, despite a two-digit level of unemployment. Thus, we may well see no further wage moderating impact from unemployment these days, suggesting, of course, the existence of a serious insider-outsider problem in Euroland's labour market.

It may be interesting to note that the above interpretation sits quite well with the empirical observation that real unit labour cost have fallen by almost 15 per cent since the beginning of the 1980s. It also shows that the traditional wage gap analysis, which is still quite frequently used to allocate an increase in unemployment between structural and Keynesian factors, may be seriously misleading. If high unemployment persists in spite of a, say, zero wage gap, then the implication is often drawn that expansionary demand management policies are called for. This, however, is poor economic reasoning since movements in actual wage shares tell us little to nothing about the underlying equilibrium relationship between the labour share and the capital-output ratio (Bentolila and Saint-Paul 1998).

Obviously, the role of a host of other factors relevant for the wage determination process remains to be carefully investigated. However, conforming to almost conventional wisdom

nowadays, the following characteristics of wage behaviour in Euroland have emerged from the above rough analysis:

- In the (very) long run real wages are highly sensitive to unemployment, probably more so than in the US. In the short run, however, there appears to be a relatively high degree of real wage rigidity in Euroland.

- The speed of real wage adjustment to shocks is very slow, with more than 4 years required to achieve half of the adjustment.

- The target wage share as implied by the wage-bargaining process comes at present quite close to its actual value, despite a two-digit level of unemployment, suggesting a serious insider/outsider problem in wage determination.

- It turns out to be quite difficult, if not almost impossible, to detect any significant changes in the wage-setting behaviour in the 1990s.

III.3 The Cyclical Behaviour of Unemployment and Okun's Law in Euroland

This section takes a quick look at the cyclical behaviour of the overall unemployment rate in the euro area. The analytical tool used is known as Okun's law describing the relation between the cyclical component of unemployment and the deviation of actual output from potential.

Both, the output gap and the cyclical component of unemployment are analytical concepts and, thus, not directly observable. Thus, turning now to the econometric specification, consider the following variant of Okun's law

(5) $ur - ur^* = -\mu (y - y^*)$

where ur denotes the actual rate of unemployment, ur* is the (unobserved) rate of structural unemployment and (y-y*) is a measure of the output gap. The Okun coefficient μ characterises the transmission of cyclical fluctuations in output into cyclical variations in the unemployment rate.

Assuming that structural unemployment has remained constant over time would lead to the following straightforward estimation of (5):

(6) $ur_t = const - \mu (y - y^*)_t + e_t$

However, given that structural unemployment in the euro area cannot plausibly be depicted as constant over time, a flexible specification for the time path of ur* is used. We allow in our test different trough-to-trough polynomial trends in structural unemployment with the order of polynomials, when necessary, running up to three.

The estimation equation in its general form then reads as

$$(7) \qquad ur_t = const + p_{1i} T_i + p_{2i} T_i^2 + p_{3i} T_i^3 - \mu (y - y^*)_t + e_t$$

where the trough-to-trough time trends T_i run from 1975 to 1983, 1984 to 1993 and from 1994 to 1998, respectively.

Finally, for a rough check on parameter stability over time, we also estimate the Okun relation over the restricted time period of the past ten years, i.e. 1989 to 1998 and, alternatively, we allow for a trend increase in the Okun coefficient in the past decade.

The estimation results are presented in Tables 8 to 10. Table 8 shows the results of the OLS estimation of equation (7) over the period 1973 to 1998 in the more parsimonious specification where insignificant terms have been removed from the equation.

Table 8: Okun's Law (OLS)

```
Piecewise Trends trough-to trough
Linear Trend                75-83
Linear, Quadratic and Cubic 84-93
Linear and Quadratic        94-98

 List of Variables in the Equation

UR            Unemployment rate Euroland OECD
T7583         Trend 73-83
T8493         Trend 84-93
T94           Trend from 1994
CONST         CONSTANT TERM

Time Range for Estimation:  1973 – 1998
```

Dep. Variable: UR										R2 0.996		R2C 0.994
Nr.	I	Independent Variables	I	Est. Coeff.	I	St. Dev.	I	t	I	BC %		
B1	I	GDPGAP	I	-0.32292	I	0.05048	I	6.40	I	1.7		
B2	I	T7583	I	0.58934	I	0.02514	I	23.45	I	6.0		
B3	I	T8493	I	1.35720	I	0.18593	I	7.30	I	18.6		
B4	I	T8493**2	I	-0.30818	I	0.05395	I	5.71	I	41.8		
B5	I	T8493**3	I	0.01958	I	0.00378	I	5.18	I	26.5		
B6	I	T94	I	0.72719	I	0.19698	I	3.69	I	3.2		
B7	I	T94**2	I	-0.12168	I	0.03866	I	3.15	I	2.3		
B8	I	CONST	I	3.08203	I	0.13316	I	23.14	I	0.0		
SE	0.24450	I MAPE	2.48	I			DW 1.962	I	RHO(1)	0.00		

The Okun coefficient μ is estimated at 0.32 according to the specification in Table 8. This result would suggest that, roughly speaking, a negative output gap of 1 per cent has driven up unemployment in Euroland, on average, by about 1/3 of a percentage point. Thus, the

cyclicality of unemployment does not seem to have been very pronounced in Euroland. For the US, in comparison, a textbook value for this coefficient would typically put it at 0.5.

It remains to be tested, however, whether this behavioural regularity can also be validated for the more recent past. Thus, for a rough test on behavioural stability over time, the Okun relation has also been estimated for the restricted time period of the past ten years, i.e. 1989 to 1998. The results of this exercise are depicted in Table 9.

Table 9: Okun's Law 1989–1998

```
              UR              Unemployment rate Euroland OECD
              GDPGAP          output gap Euroland OECD
              CONST           CONSTANT TERM

              Time Range for Estimation:  1989    – 1998

 ============================================================================
  Dep. Variable:  UR                              I R2  0.941 I R2C  0.933
 ----------------------------------------------------------------------------
  Nr.I Independent Variables         I Est. Coeff.I St. Dev.  I   t   I BC %
 ----------------------------------------------------------------------------
     I                               I            I           I       I
  B1 I GDPGAP                        I   -0.84531 I   0.07504 I 11.26 I100.0
     I                               I            I           I       I
  B2 I CONST                         I   10.56331 I   0.12937 I 81.65 I  0.0
     I                               I            I           I       I
 ----------------------------------------------------------------------------
  SE     0.40367  I  MAPE      2.23  I            I DW  2.116 I RHO(1) -0.06
 ============================================================================
```

There are two points worth noting from the above table. First, it turns out that over the period from 1989 to 1998 the Okun relation can be satisfactorily described without the help of time trends approximating the evolution of structural unemployment. Thus, for the past ten years the movement of unemployment may well be characterised as cyclical swings around a more or less constant (and high) structural rate. Secondly, the Okun coefficient is estimated to have been much higher in the most recent business cycle; taken at face value, the estimate would suggest that over the past ten years cyclical fluctuations in output have been translated almost one to one into cyclical swings in unemployment. A very similar picture emerges from an alternative estimation strategy allowing for a trend increase in the (absolute) value of the Okun coefficient starting from 1989 onwards. The results of such an exercise (reported in Table 10) do indeed confirm the observation that over the past ten years unemployment cyclicality has significantly increased in Euroland.

Table 10: Okun's Law: Alternative Specification

UR	Unemployment rate Euroland OECD
GDPGAP	output gap Euroland OECD
Var1	T89*GDPGAP
T7583	Trend 73-83
T8493	Trend 84-93
CONST	CONSTANT TERM

Time Range for Estimation: 1973 – 1998

Dep. Variable: UR — R2 0.994 — R2C 0.992

Nr.	Independent Variables	Est. Coeff.	St. Dev.	t	BC %
B1	GDPGAP	-0.30928	0.05718	5.41	1.9
B2	Var1	-0.06572	0.02446	2.69	1.5
B3	T7583	0.59633	0.02868	20.79	7.4
B4	T8493	1.21705	0.23193	5.25	20.3
B5	T8493**2	-0.25790	0.07073	3.65	42.6
B6	T8493**3	0.01587	0.00512	3.10	26.2
B7	CONST	3.05800	0.15101	20.25	0.0

SE 0.27655 — MAPE 2.59 — DW 2.240 — RHO(1) -0.16

Fitted time trends to capture the movements in structural unemployment are indicative of a straightforward linear increase in structural unemployment over the period 1975 to 1983 from a starting value of about 3 per cent to close to 9 per cent at the cyclical trough in 1983; from 1984 onwards the estimate for structural unemployment in Euroland hovers around in the 9-10 per cent range until the next cyclical trough in 1993, with some tendency to reflect movements in actual unemployment to a small extent and with a lag of one to two years. A very similar pattern is to be observed in the years from 1993 onwards with structural unemployment creeping up by another percentage point before starting to decrease somewhat in the recent past. Nevertheless, these estimates would suggest that around 90 per cent of current unemployment in Euroland are of a non-cyclical nature.

Table 11: Unemployment and Its Cyclical Component in Euroland

YEAR	Unemployment rate Euroland OECD	Structural Rate Estimate	Estimated Cyclical Component
1973	2.600	3.249	-0.649
1974	2.800	3.233	-0.433
1975	4.000	3.320	0.680
1976	4.400	4.400	0.000
1977	4.800	4.893	-0.093
1978	5.100	5.409	-0.309
1979	5.300	6.011	-0.711
1980	5.700	6.257	-0.557
1981	7.000	6.938	0.062
1982	8.300	7.898	0.402
1983	9.400	8.781	0.619
1984	10.200	9.612	0.588
1985	10.400	9.874	0.526
1986	10.500	10.067	0.433
1987	10.500	10.129	0.371
1988	10.100	10.224	-0.124
1989	9.300	9.900	-0.600
1990	8.600	9.658	-1.058
1991	8.700	9.713	-1.013
1992	9.600	10.172	-0.572
1993	11.300	10.024	1.276
1994	12.200	11.145	1.055
1995	11.900	10.823	1.077
1996	12.300	10.713	1.587
1997	12.400	10.869	1.531
1998	11.700	10.444	1.256

Clearly, the above decomposition of unemployment into its cyclical and non-cyclical component should not be taken at face value given the reduced-form approach taken. It does offer, though, another piece of evidence for the stylised observation that over the past 25 years unemployment in Euroland has moved more from business cycle to business cycle than within the cycles.

It should be noted, however, that this methodology and estimation strategy tends, almost by definition, to force the time path of structural unemployment quite close to actual unemployment. This can easily be seen from equation (5), since for an (expected) value of μ between zero and one the cyclical component of unemployment can never exceed the (absolute) value of the output gap. And, of course, approximating the evolution of ur* over time with the help of polynomial trends does not give any clue on the underlying causes of movements in structural unemployment. Despite these obvious shortcomings, though, a sensible empirical estimate of the parameter μ may be regarded as a useful stylised fact concerning the cyclical behaviour of unemployment in Euroland.

The Okun relation is, of course, a reduced-form type equation at a highly aggregated level. Cyclical variations in unemployment are ultimately the end result of the dynamic interaction of

the inflow and outflow of employment, unemployment and non-participation in the labour market. From a purely mechanistic standpoint, the extent of cyclical fluctuations in production, the reaction of employment demand to output fluctuations and the cyclical variability of the labour supply operate simultaneously. After all, the cyclical sensitivity of real wages also curbs fluctuations in output and employment. In what follows we start an investigation into these different dynamic processes by taking a first look at the responsiveness of employment to cyclical fluctuations in output and the cyclical volatility of the labour force.

Table 12: The Cyclical Responsiveness of Euroland's Labour Market(s)

	Employment to GDP[1]		Labour Force to Employment[2]		Okun's - μ [3]	
	69-89	89-98	69-89	89-98	69-89	89-98
AUSTRIA	0.37	0.56	0.80	0.96	0.06	0.02
BELGIUM	0.45	0.73	-	-0.12	0.45	0.82
FRANCE	0.38	0.58	0.21	0.07	0.30	0.54
GERMANY	0.53	0.86	0.42	0.46	0.31	0.46
IRELAND	0.63	0.56	0.35	0.28	0.41	0.40
ITALY	0.15	0.56	0.63	0.34	0.06	0.37
NETHERLANDS	0.48	0.84	0.12	0.11	0.42	0.75
PORTUGAL	- 0.13	0.88	1.22	0.67	-	0.29
FINLAND	0.35	0.76	0.31	0.24	0.24	0.58
SPAIN	0.74	0.22	1.45	0.10	-	0.20
LUXEMBOURG	0.08	- 0.09	0.44	0.33	0.05	-
EUROLAND	0.43	0.97	0.18	0.26	0.35	0.72
USA	0.59	0.67	0.27	0.27	0.43	0.49

[1] Estimated coefficient in a regression of the deviations of employment from trend on the deviation of GDP from trend, where the trends have been established by the Hodrick-Prescott filter imposing identical smoothing factors for employment and GDP in all countries.
[2] Estimated coefficient in a regression of the trend deviation in the labour force on the trend deviation of employment, where the trends have been established by the Hodrick-Prescott filter imposing identical smoothing factors for employment and the labour force in all countries.
[3] Estimated Okun coefficients as implied by the cyclical responsiveness of employment to GDP (1) and the cyclical responsiveness of the labour force to employment (2); calculated as (1) times [1 - (2)].

The results in Table 12 suggest that in the 1990s unemployment cyclicality has been higher in Euroland than in the US, while the opposite was true in the previous two decades. The main reason for this is apparently to be found in Euroland's employment now responding much stronger to cyclical fluctuations in output than in the past, and even somewhat stronger than in the US. This holds true for almost all of the individual euro-11 countries. Given that the higher employment responsiveness has not been triggered by less flexible wage adjustment mechanisms, it may be reasonably concluded that labour market reforms in the 1990s have been successful insofar as rigidities with respect to employment decisions were apparently greatly reduced. Thus, in consequence, it appears rather implausible that too strict employment protection regulations, in general, can still offer a convincing explanation for a significant part of Euroland's problem of persistently high unemployment. However, the rising incidence of atypical jobs, in particular among certain ("non-core") groups of the workforce such as the youth and prime-age women, suggests that the apparent increase in overall employment flexibility may also reflect a much stronger segmentation of the labour market.

IV. Concluding Remarks

This paper has attempted to establish a few stylised facts about Euroland's labour market given the even increased importance of smoothly functioning markets in a monetary union. The econometric evidence assembled can be summarised as follows:

- The real wage elasticity of labour demand is estimated at between –0.3 to –0.4; thus, a one per cent decrease in real product wages increases, ceteris paribus, employment demand by 0.3–0.4 per cent. Thus, there is room for capital-labour substitution at given output.

- The speed of employment adjustment has apparently increased in the past decade to around 80 per cent adjustment being achieved in one year, up by some 25 percentage points from its average value over the past three decades.

- Autonomous technical progress is estimated to have averaged 1.2–1.3 per cent per year in the period since 1975, a value which falls significantly short of the trend growth rate of actual labour productivity amounting to 1.8 per cent in this time span.

- In the (very) long-run, real wages are highly sensitive to unemployment, probably more so than in the US. In the short run, however, there appears to be a relatively high degree of real wage rigidity in Euroland.

- The speed of real wage adjustment to shocks is very slow, with more than 4 years required to achieve half of the adjustment.

- The target wage share as implied by the wage bargaining process comes at present quite close to its actual value, despite a two-digit level of unemployment, suggesting a serious insider/outsider problem in wage determination.

- It turns out to be quite difficult, if not almost impossible, to detect any significant changes in the wage-setting behaviour in the 1990s.

- Over the period 1989 to 1998 the movement of unemployment may well be characterised as cyclical swings around a more or less constant (and high) structural rate. Around 90 per cent of current unemployment in Euroland is estimated to be of a non-cyclical nature.

- In the 1990s, unemployment cyclicality has been higher in Euroland than in the US, while the opposite was true in the previous two decades. The main reason for this is apparently to be found in Euroland's employment now responding much stronger to cyclical fluctuations in output than in the past, and even somewhat stronger than in the US.

Given that the higher employment responsiveness has not been triggered by less flexible wage adjustment mechanisms, it may be reasonably concluded that labour market reforms in the 1990s have been successful insofar as rigidities with respect to employment decisions were apparently greatly reduced. Thus, in consequence, it appears rather implausible that too strict employment protection regulations can still offer a convincing explanation for a significant part of Euroland's problem of persistently high unemployment. However, employment protection regulations may change the composition of the unemployment pool with respect to the duration by reducing the rate of flow into and out of unemployment (Nickell and Layard 1997). The apparent increase in overall employment flexibility may also reflect a much stronger segmentation of the labour market. Indeed, in a number of EU countries regulations on employment contracts have been significantly eased, in particular on so-called "atypical" employment contracts such as part-time jobs and temporary work (OECD 1999b). Thus, with sustained strict employment protection regulation on regular contracts, there have been additional incentives to switch from permanent contracts to more flexible work arrangements. While this may have helped to achieve the required workforce flexibility in otherwise still fairly rigid labour markets, it may have also led to a more segmented labour market in which those with permanent contracts benefit both from employment protection legislation and from increased bargaining power by virtue of a growing number of workers in "atypical" forms of employment. Thus, there can be little doubt that wage bargaining in Euroland continues to suffer from a serious insider-outsider problem.

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